REMARKS

Claims 1-3 and 5-8 are pending in this application. By this Amendment, claim 4 is canceled without prejudice to, or disclaimer of, the subject matter recited therein. Claims 1, 2, 5, 7 and 8 are amended. Claim 1 is amended to incorporate the subject matter of canceled claim 4. Claim 2 is amended to clarify the subject matter of that claim, and claim 5 is amended to correct its dependency due to the cancellation of claim 4. The specification is amended to correct a typographical error. No new matter is added.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; and (c) place the application in better form for appeal, should an appeal be necessary. Entry of the amendments is thus respectfully requested.

I. Claim Rejections Under 35 U.S.C. §112

Claims 7 and 8 are rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. Specifically, the Office Action alleges that the specification does not disclose canceling the reduction of the braking force as recited in those claims.

Support for the canceling of the reduction of the braking force as recited in claims 7 and 8 may be found at least at Fig. 3, Steps S40 to S120, as well as page 16, lines 14-21 of the originally filed specification. As recited in the specification, "if the relative distance falls below the second limit L2, the braking pressure Pbi or the boosting factor thereof may be increased to the maximum level". In other words, increasing the boosting factor to a maximum level corresponds to canceling the reduction of the braking force (see also Figs.

4A-4D) and accompanying text of the specification. Accordingly, withdrawal of the rejection of claims 7 and 8 under 35 U.S.C. §112, first paragraph, is respectfully requested.

II. Claim Rejections Under 35 U.S.C. §103

Claims 1-8 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent Application Publication No. 2002/0091479 to Maruko et al. The rejection is respectfully traversed.

Maruko fails to disclose each and every feature recited in the rejected claims, as amended. For example, Maruko fails to disclose a device for controlling a braking force of a vehicle, the device comprising . . . a boost-reducing control portion that controls the boosting control portion so as to reduce the braking force when a steering operation is executed by a driver of the vehicle as compared to a braking force to be generated when no steering operation is executed, thereby reducing the braking force and allowing the driver to avoid a collision through the steering operation executed by the driver; wherein the boost-reducing control portion controls a reduction in the braking force based upon a lateral force on a steered wheel estimated from the steering operation by the driver and a motional condition of the vehicle, as recited in amended claim 1.

Additionally, Maruko fails to disclose or suggest a device for controlling a braking force of a vehicle, the device comprising . . . a boost-reducing control portion that controls the boosting control portion so as to reduce the braking force when it is judged that the collision is avoidable by a steering operation of a driver of the vehicle based on a lateral force on a wheel of the vehicle, as compared to a braking force to be generated when it is judged that the collision is inevitable by the steering operation, as recited in amended claim 2.

Maruko relates to a braking control system that automatically controls a braking force needed for an automatic braking operation without the driver's braking action when a host vehicle is approaching a frontly positioned object (Abstract of Maruko). In a first embodiment, Maruko describes a preliminary braking control system which is initiated prior to a driver's braking action. Thus, the first embodiment of Maruko does not relate to a braking force boosting control portion or a boost-reducing control portion, as the preliminary braking control system only pertains to initiating the automatic braking and not to a boost control or boost-reducing operation. For example, as described in paragraph [0030], the system of the first embodiment operates to suppress or prevent automatic preliminary braking pressure application (automatic brake preapplication) in the presence of the driver's intention for lane changing.

In a second embodiment, Maruko describes a supplementary braking control operation which is enabled only when the actual brake pressure is less than a target brake pressure (see paragraph [0092]).

The automatic supplementary brake-application control routine is shown at Fig. 14 and is executed by a processor of an electronic control unit 29 ([0072]). The supplementary braking control mode is executed with a limitation in the presence of a driver's intention for lane changing (LC=1), and is executed with no limitation in the absence of the driver's intention for lane changing (LC=0). In other words, when there is a driver's intention for lane changing a target braking pressure Pt based on target deceleration rate Gx* is used for the supplementary braking control (see paragraph [0072]).

As shown in Fig. 14, a determination of whether a lane change is made is shown at step S116. If a lane change (LC=1) is detected, the supplementary brake application control is enabled with a limitation at step S118. If no lane change is detected (LC=0), the supplementary brake application control is enabled without limitation at step S117. In other words, if there is a detection of a lane change, or the driver is steering, the supplementary brake application is enabled with a limitation, and if the driver is maintaining a straight course, the supplementary brake application is enabled without limitation.

However, as shown in Fig. 4, the determination of whether a driver is lane changing begins at step S56, where the steering angle and the relative angle of the vehicle to an object, or oncoming object is detected (see also paragraph [0050]). The steering angle is determined from a position of the steering wheel 36 (see paragraph [0030]), and the relative angle to the object is determined by the reading from the object detector 31. This relative angle θ is the angle between the traveling direction of the vehicle and the direction of the location of the object as viewed from the vehicle. Thus, Maruko fails to disclose or suggest a boost-reducing control portion that controls reduction of the braking force based upon a lateral force on a steered wheel estimated from the steering operation by the driver and a motional condition of the vehicle.

Rather, each of the determinations of whether to reduce the supplementary braking control operation in Maruko is dependent on whether there is a lane change operation which is determined by calculating the steering angle according to the steering wheel and the relative angle between the vehicle and the object, as shown at step S56 in Fig. 4. For example, as described at paragraph [0086], a determination of whether a lane changing indication flag is set or reset is based on a result of the decision routine of Fig. 4. Thus, Maruko fails to disclose reducing a brake force based on a lateral force on a wheel of a vehicle.

Regarding claim 7 and 8, Maruko fails to disclose or suggest a device for controlling a braking force of a vehicle, the device comprising: a braking force boosting control portion that increases the braking force in response to a detection of a first possibility of a collision with an obstacle in a driving course of the vehicle; and a boost-reducing control portion that controls the boosting control portion so as to reduce the braking force when a steering operation is executed by a driver of the vehicle as compared to a braking force to be generated when no steering operation is executed as started from the detection of the first possibility until a second possibility that the collision with the obstacle is inevitable solely by either of a steering operation and a braking operation by the driver is detected, the boost-reducing control portion canceling the reduction of the braking force when the second possibility is detected.

Furthermore, Marko fails to disclose or suggest a device for controlling a braking force of a vehicle, the device comprising: a braking force boosting control portion that increases the braking force in response to a detection of a possibility of a collision with an obstacle in a driving course of the vehicle; and a boost-reducing control portion that controls the boosting control portion so as to reduce the braking force when it is judged that the collision is avoidable by either of a steering operation and a braking operation of a driver of the vehicle as compared to a braking force to be generated when it is judged that the collision is inevitable by the steering operation but to cancel the reduction of the braking force when it is judged thereafter that the collision is inevitable by either of the steering operation and the braking operation.

Accordingly, Maruko fails to disclose or suggest each and every feature recited in the rejected claims. Thus, withdrawal of the rejection of claims 1-8 under 35 U.S.C. §103(a) is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

John W. Fitzpatrick
Registration No. 41,018

JAO:JWF/ldg

Date: July 29, 2005

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE
AUTHORIZATION
Please grant any extension
necessary for entry;
Charge any fee due to our
Deposit Account No. 15-0461